

IN THE CLAIMS:

Please amend the claims as follows:

1. (currently amended) A routing control method in a mixed environment of a ~~hierarchical network and a non-hierarchical network~~ a network of a first type and a network of a second type, respectively defined by first and second address spaces, the first and second address spaces each having network-identifying and host-identifying portions, wherein ~~the hierarchical network allows the network of the first type provides~~ hierarchical routing control by which a route is searched for without referring referencing a subset of address bits of the network-identifying portion of the first address space, and the network of the second type provides routing control by referencing ~~to an entirety of address bits of the network-identifying portion of the second address space that identify a network, and the non-hierarchical network does not allow said hierarchical routing control~~, comprising:

assigning the ~~non-hierarchical network~~ of the second type a virtual hierarchy number that depends on ~~a hierarchy number of a portion of the hierarchical network to which the non-hierarchical network is connected~~ corresponds to the subset of address bits of the network-identifying portion of the first address space and identifies a portion of the network of the first type at which the network of the second type is interfaced via a router,

attaching the virtual hierarchy number to a packet to be relayed at ~~a the router located at an entrance from the non-hierarchical network to the hierarchical network~~ when the packet is to be relayed between ~~non-hierarchical networks via the hierarchical network~~ the network of the second type and the network of the first type,

performing ~~a said hierarchial~~ routing control by the virtual hierarchy number within the ~~hierarchial network~~ of the first type, and

removing the virtual hierarchy number from the packet to be relayed at a the router ~~located at an exit from the hierarchial network to the non hierarchial network~~ when the packet is to be relayed between the network of the first type and a network of the second type.

2. (currently amended) The routing control method ~~in the mixed environment of the hierarchial network and the non hierarchial network~~ as claimed in claim 1, wherein an address of the ~~non hierarchial network~~ of the second type is accommodated in an interface identification information block of an address format of the ~~hierarchial network~~ of the first type, and the virtual hierarchy number is accommodated in a hierarchy information block of the address format of the ~~hierarchial network~~ of the first type for said ~~hierarchial~~ routing control ~~and transmitting routing information~~ within the network of the first type.

3. (currently amended) The routing control method ~~in the mixed environment of the hierarchial network and the non hierarchial network~~ as claimed in claim 2, wherein each ~~router~~ of one or more routers of the ~~hierarchial network~~ of the first type comprises a ~~hierarchial~~ first routing table that performs said ~~hierarchial~~ routing control by using only the hierarchial information block as a key, and a ~~conventional~~ second routing table that performs routing ~~search~~ control by using the hierarchial information block ~~hierarchial information~~ and the interface identification information block as keys.

4. **(currently amended)** The routing control method ~~in the mixed environment of the hierarchical network and the non-hierarchical network~~ as claimed in claim 3, wherein each router of the one or more routers of the hierarchical network of the first type uses the ~~hierarchical~~ first routing table when relaying a packet between the ~~hierarchical~~ network of the first type and another ~~hierarchical~~ network of the first type.

5. **(currently amended)** The routing control method ~~in the mixed environment of the hierarchical network and the non-hierarchical network~~ as claimed in claim 3, wherein each router of the one or more routers of the hierarchical network of the first type uses the ~~conventional~~ second routing table when relaying a packet from the ~~hierarchical~~ network of the first type to the ~~non-hierarchical~~ network of the second type, and from the ~~non-hierarchical~~ network of the second type to the ~~hierarchical~~ network of the first type.

6. **(currently amended)** The routing control method ~~in the mixed environment of the hierarchical network and the non-hierarchical network~~ as claimed in claim 5, wherein the router ~~located at a boundary of the non-hierarchical network and the hierarchical network~~ interfacing the network of the first type with the network of the second type recognizes a packet relay from the ~~non-hierarchical~~ network of the second type to the ~~hierarchical~~ network of the first type, and from the ~~hierarchical~~ network of the first type to the ~~non-hierarchical~~ network of the second type, by using a receiving interface name and a transmission interface name when relaying the packet.

7. **(Amended)** A routing control apparatus in a mixed environment of a ~~hierarchical network and a non-hierarchical network~~ network of a first type and a network of a second type, respectively defined by first and second address spaces, the first and second address spaces each

having network identifying and host identifying portions, wherein the hierarchical network allows hierarchical network of the first type provides routing control by which a route is searched for without referring to referencing a subset of address bits of the network identifying portion of the first address space, and the network of the second type provides routing control by referencing an entirety of address bits of the network identifying portion of the second network that identify a network, and the non-hierarchical network does not allow said hierarchical routing control, comprising:

virtual hierarchy number assigning means for assigning the ~~non-hierarchical network of the second type~~ a virtual hierarchy number that ~~depends on a hierarchy number of a portion of the hierarchical network to which the non-hierarchical network is connected~~ corresponds to the subset of address bits of the network-identifying portion of the first address space and identifies a portion of the network of the first type at which the network of the second type is interfaced via a router, and for attaching the virtual hierarchy number to a packet to be relayed at a the router located at an entrance from the non-hierarchical network to the hierarchical network when the packet is to be relayed between non-hierarchical networks via the hierarchical network the network of the first type and the network of the second type,

routing control means for performing ~~said hierarchical routing control~~ of the packet by the virtual hierarchy number within the ~~hierarchical network~~ of the first type, and

virtual hierarchy number removing means for removing the virtual hierarchy number from the packet to be relayed at ~~a the router located at an exit from the hierarchical network to the non-hierarchical network~~ when the packet is to be relayed between the network of the first type and a network of the second type.

8. **(currently amended)** The routing control apparatus as claimed in claim 7, wherein the virtual hierarchy number assignment means accommodates an address of the ~~non-hierarchical~~ network of the second type in an interface identification information block of an address format of the ~~hierarchical~~ network of the first type, and accommodates the virtual hierarchy number in a hierarchy information block of the address format of the ~~hierarchical~~ network of the first type for performing said ~~hierarchical routing control and transmitting routing information in the network~~ of the first type.

9. **(currently amended)** The routing control apparatus as claimed in claim 8, wherein each router of one or more routers of the ~~hierarchical~~ network of the first type comprises a ~~hierarchical~~ first routing table that performs said ~~hierarchical~~ routing control by using only the hierarchical information block as a key, and a ~~conventional~~ second routing table that performs routing ~~search~~ control by using the hierarchical information block ~~hierarchical information~~ and the interface identification information block as keys.

10. **(currently amended)** The routing control apparatus as claimed in claim 9, wherein each router of the ~~hierarchical~~ network of the first type comprises ~~hierarchical~~ a first routing search means that performs routing search using the ~~hierarchical~~ first routing table when relaying a packet between the ~~hierarchical~~ network of the first type and another ~~hierarchical~~ network of the first type.

11. (currently amended) The routing control apparatus as claimed in claim 9, wherein each router of the ~~hierarchical~~ network of the first type comprises ~~conventional~~ a second routing search means that performs routing search using the conventional routing table when relaying a packet from the ~~hierarchical~~ network of the first type to the ~~non-hierarchical~~ network of the second type, and from the ~~non-hierarchical~~ network of the second type to the ~~hierarchical~~ network of the first type.

12. (currently amended) The routing control apparatus as claimed in claim 11, wherein the router ~~located at a boundary of the non-hierarchical network and the hierarchical network~~ interfacing the network of the first type with the network of the second type includes ~~comprises~~ recognition means that recognizes a packet relay from the ~~non-hierarchical~~ network of the second type to the ~~hierarchical~~ network of the first type, and from the ~~hierarchical~~ network of the first type to the ~~non-hierarchical~~ network of the second type, using a receiving interface name and a transmission interface name when relaying the packet.

13. (new) The routing control method as claimed in claim 1, wherein the network of the first type is an IPv6 network, and the network of the second type is an IPv4 network.

14. (new) The routing control apparatus as claimed in claim 7, wherein the network of the first type is an IPv6 network, and the network of the second type is an IPv4 network.